

MISCELLANEOUS NOTES

1. THE GOLDEN LANGUR, *PRESBYTIS GEEI* KHAJURIA IN BHUTAN

The Golden Langur *Presbytis geei* Khajuria, a beautiful species of colobine monkey, was discovered only as recently as 1956, and has so far, remained little known. Most of the relevant researches were confined to the Himalayan foothills along the Assam-Bhutan border in Jamduar-Raimona area on the bank of the Sankosh river, and subsequently to the Manas Sanctuary on the bank of the Manas river, Bhutan, the little montane kingdom in the eastern Himalaya, adjacent to the known range of the Golden Langur, unexplored because this country remained largely isolated from the rest of the world until recently. Zoological explorations in different regions of that country began since 1966. The present paper is aimed to record the field investigations carried out by the Zoological Survey of India Expedition team on the Golden Langur.

Occurrence of the Golden Langur, ascribed in the earlier reports, was in a very limited area in Assam, confined to the foothills of Assam-Bhutan border in Jamduar-Raimona area in the Raimona Forest Range in the Goalpara district of Assam (Gee 1956, 1961; Khajuria 1956, 1962). Wayre (1968) for the first time observed it in the Bhutan part of the Manas Sanctuary away from its type locality, extending its range further eastward to the bank of the Manas river on the northern fringe of the Kamrup district of Assam (which was confirmed by several other workers). The Bhutan Expeditions of the Zoological Survey of India, for the first time,

obtained specimens in Bhutan and established that the chief centre of abundance of *Presbytis geei* Khajuria lies in the forests of the Black Mountain Range of Central Bhutan. The habitat preference of the Golden Langur, as observed, is in the deep ravines and gorges along the hill slopes in evergreen forests of diverse nature. The actual limits of the range of this species, based on our observations, are between Sankosh basin in the west to Manas basin in the east, and from the Assam-Bhutan border foothills in the south to the inner Himalayan range in the north, centering the Black Mountain Range in the Central Bhutan. Altitudinally, it ranges from the foothills (c. 150 m) to a height of c. 3000 m above the sea level. This beautiful species of colobine monkey has a closer affinity to the Indo-Chinese elements.

Zonal records of troops of the Golden Langur as observed in Bhutan (from west to east) are:

Western Bhutan. In the upper reaches of the Sankosh river, locally called Puna Chang Chu: troops were seen below Do Chu La, c. 30 km west of Wangdiphodrang.

At the foothills, where Sankosh meets the plains: troops were seen in the Bhutanese territory adjacent to the Jamduar area.

Central Bhutan. In the Aie Chu valley at the foothills: troops were seen in the dense forests between Sarbhanga and Gaylegphug.

In the Mangde Chu valley: in the magnificent forests all along the road from Gaylegphug to Tongsa, troops of the Golden Langur

were seen. In these two valleys the following places in particular are worth mentioning: Gaylegphug, Tatapani, Samkhara, Batase, Tama, Mangdechu, Dakpai c. 15 km south of Shamgong, Wangregongchu c. 15 km north of Shamgong, Pangjurmane and also along the Tongsa Chu below Tongsa.

Eastern Bhutan. In the Manas river basin: troops were seen in the foothills where the Manas river meets the plains, near Mothan-guri in the Manas Sanctuary, and in the upper reaches along the various tributaries of the Manas river, namely Bumthang Chu, Kuru Chu and Dangma Chu to the altitude of about 3000 m. And to further east, along the road from Samdrup Jongkhar to Tashigong, particularly at Gomchu and Yomphula troops were seen.

Before dealing on the abundance of the species in Bhutan, as evidenced by a number of troops and individuals observed, it will be worthwhile to mention here the historical report on the observation of apparently the Golden Langur before this species formally came to be known to science. The account is by Pemberton (1839) who in his "Report on Bootan" on the results of Pemberton's Mission in 1838, mentions under the caption 'Wild Animals and Birds': "...some monkeys ...and a very remarkable variety was observed by Dr. Griffith, in the glen through which the Mateesam river flows below Tongso, 5,417 feet above the sea; this species he described as perfectly white, with a long pendant tail, and would appear to be a new variety". Mateesam river is the Mangde Chu of today and Tongso is Tongsa Dzong. Some 50 km south of the place of reference by Capt. Pemberton lies Pangjurmane where Dr. Biswas collected his second specimen of the Golden Langur in Bhutan out of a troop in 1967.

The Bhutan expeditions of the Zoological

Survey of India in 1966, 1967, 1969, 1973 and in 1978 critically investigated the occurrence and other aspects of the Golden Langur. Although only two specimens were collected, one from Gaylegphug (alt. c. 150 m) and the second from Pangjurmane (alt. c. 1525 m) in 1967 (cf. Chakraborty 1975), these are the first record of specimens taken in Bhutan.

In different trips, approximately 1250 individuals in 67 troops were actually counted by us in Bhutan making, an average of about 18.658 (range 12-27 individuals) per troop, higher than the estimated troop size as 12.5 ± 4.154 (range 12-18 individuals) in a normal bisexual troop accounted by Mukherjee and Saha (1974) in Jamduar-Raimona area in the plains of Assam adjacent to the foothills of Assam-Bhutan border. The break-up of the troops may be presented as:

In Western Bhutan. i) In foothill (Jamduar area): 4 troops 50 individuals; ii) in upper reaches of the Sankosh basin: 5 troops 90 individuals.

In Central Bhutan. i) In foothills (Aie valley): 20 troops 350 individuals; ii) In upper reaches (Mangde Chu valley): 25 troops 500 individuals.

In Eastern Bhutan. i) In foothills (Manas area): 5 troops 60 individuals; ii) In upper reaches (above 1000 m alt.): 8 troops 150 individuals.

Although the above figures do not give the total picture of the Golden Langur population in Bhutan as the count was made only along roadside forests, they definitely indicate a larger troop size and more abundance in Central Bhutan than in its peripheral limits particularly in the adjoining Indian territory in the foothills in Goalpara district of Assam. It is also apparent on the basis of observations available from Assam and Bhutan that, in fact, the Golden Langur is a Bhutanese species

whose southern limit happens to be on the Bhutan-Assam border, so that only a marginal part of its range lies within the Indian territory. And obviously for its meagre records from the limited study area in Assam-Bhutan border, it was, so far, regarded as a rare species of primates and included in the list of vanishing and endangered species of wildlife. To the contrary, the Golden Langur, non-aggressive, docile and forest-dwelling monkey, a unique discovery of recent times, is thriving well and has a peaceful home in the

luxuriant forests in the lap of the sacred and unperturbed grandeur of the Black Mountain in Central Bhutan, in the little montane kingdom of Bhutan, the dragonland.

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2. SOME OBSERVATIONS ON INTER-OESTRUS INTERVAL IN CAPTIVE TIGRESSES [*PANTHERA TIGRIS* (LINNAEUS)]

The Felidae appear to be seasonally polyoestrus in temperate regions and completely polyoestrus in tropical regions (Asdell 1964). About cats in general Prater (1971) states that no definite knowledge is available about sexual periodicity and the intervals of time which elapse between the periods when fe-

males are in condition to breed. The present communication gives some data on the interoestrus interval of the tigress (*Panthera tigris*) observed at Nandankanan Biological Park, Orissa during the period from September, 1970 to August, 1977.

The tigers of the Park are kept in pairs and